EPA officials assure City cyanide test safe

by Jim Pokin

An impressive array of federal and state environmental officials, and representatives of the C-E Raymond Co., on Monday assured the City Council that the test-burning of cyanide-tainted film chips will not pose a hazard in Naperville.

Council members, after listening to the presentation — and also getting independent advice from scientists from the Argonne Laboratory, the Amoco Research Center, and Nalco Chemical — indicated they will formally approve the request next Monday.

The problem

The Illinois Environmental Protection Agency (IEPA) and the U.S. Environmental Protection Agency (USEPA) are looking at incineration as the way to dipose of 14,500,000 pounds of film chips which are tainted with small amounts of cyanide.

The chips, left over from a process which uses cyanide to extract silver from film, were found last May, illegally stored in 48 trailers in Chicago and at a warehouse in Dixon, Ill.

Environmental officials want to test-burn a sample of the chips, between 1,000 and 2,000 pounds, at a small rotary incinerator at the C-E Raymond Laboratory at 2151 Fisher dr., located between Diehl road and the East-West Tollway, west of Rt. 59 and Country Lakes boulevard.

An informed source told The SUN that if the test-burning succeeds in destroying the cyanide (as environmental officials expect that it will) the IEPA will destroy the bulk of the film chips at a larger, C-E Raymond-built commercial incinerator, owned and operated by the SCA Corp., located on Chicago's South Side. A USEPA official said, however, said that assessment is premature, that the work will probably be bid, once it is determined which agency will handle it, and what funding is available.

Incineration

Wilbur Cephart, C-E Raymond's manager for incineration sales, explained that rotary incineration is a multi-step process. Waste is fed into the unit through a mechanical feeding system. From there, it goes into a rotary kiln, which one company official compared to the spin chamber in a clothes dryer. The material burns there for 20 minutes to two hours, depending on how fast the cylinder is rotated. In a subsequent step, the material is burned at high temperature as a gas. The gas is then cooled; a scrubber is used to remove particulates; acid is neutralized to prevent "acid rain;" and clean gas is exhausted into the atmosphere through a stack.

The other by-products are a small quantity of inert ash, and water, which is neutralized before being released into the City's sewers.

It is after the solids have already been burned in the kiln, when they enter a subsequent chamber as gas "where we get the destruction" of chemicals, Cephart said. In the gas chamber, the waste is heated to between 1800 and 2200° for two seconds, for the complete combustion (99.99% destruction) which breaks the material down into its harmless, basic chemical components.

According to David Leewood, a C-E Raymond engineer, the test incinerator in Naperville has an inside diameter of two feet, and is 7 feet long. That compares to commercial incinerators 10½ feet in diameter and 50 feet long.

Several C-E Raymond representatives stressed that the company complies with USEPA and IEPA regulations, which are stringent and voluminous.

Company plans

C-E Raymond made inquiry to the City back in June, to see if the Council would be willing to entertain the idea of approving the test-burning of hazardous waste here, on a long-term basis. According to the company, City approval is necessary before an IEPA permit can be issued. The Council subsequently agreed to a Nov. 28 workshop on the subject.

In the meantime, IEPA and the USEPA approached the company with the more immediate and emergency problem of what to do with the tainted film chips, which pose a threat to public health in Chicago and Dixon.

Bill Constantelos, manager of the hazardous waste program for the USEPA, said it was "fortuitous" that the meeting between the company and the City had already been set up, so that discussion of the cyanide-tainted chips could be added to it.

Constantelos said the USEPA is looking at incineration as the best way to solve the problem, because it will eliminate the physical bulk of the 14,500,000 pounds of chips.

'Hungry for data'

Donald Oberacker, from the USEPA's research center in Cincinnati, told the Council that he has been "hungry for some data on cyanides." The USEPA has an extensive list of hazardous and toxic wastes. Oberacker said the agency has yet to come across one which it could not "kill" (break down to its chemical components) through the white hot temperatures of incineration.

Although he is confident incineration will destroy cyanide, he said he wants a test-burn to prove it, before moving on to a full-sized incinerator.

(Please turn to Page 12)

Incineration is 99.99% effective, firm says

(Continued from Page 2)

Oberacker said he will be on-site when the test-burn (scheduled to begin Dec. 12) takes place. He said the testing will take a week. A sample of 2,000 pounds will be brought on site (in sealed drums according to C-E Raymond officials), although it is only expected that half of that will be burned.

A ton of the material only contains about a pound of cyanide, Oberacker said. However, for the purpose of the experiment, cyanide will be added, perhaps 20 pounds or more, he said.

The burning will be sampled from beginning to end, in nine or 10 different points in the process, he said.

The 'worst case'

As is customary, the USEPA has developed a "worst case scenario," in the event the test goes awry. Because the test material will have added cyanide in it, the most which could come out the stack, in the event none of the cyanide were destroyed, would be 100 parts/million, Oberacker said.

What the USEPA expects is emission of 1, 2 or 3 parts/million, Oberacker said. That level will immediately be diluted as it leaves the stack and enters the atmosphere.

The stack will have a number of monitoring devices in place, including himself, Oberacker stated. In the event that more than 10 parts/million of cyanide comes out the stack, alarm bells will go off, and the test-burn will be shut down.

Oberacker noted that 10 parts/million for an eight-hour work day is the federal standard for industrial workers, for cyanide.

Y.J. Kim, USEPA engineer for Midwest Region 5, noted there should be little cyanide going out the stack. Whatever escapes incineration will also have to get by the scrubber, he said.

He noted that the USEPA will also have mobile monitoring equipment in the area around the lab, to measure any cyanide which escapes the stack.

Local experts

At the request of the City, a number of scientists from local research facilities were present to quiz EPA and company officials.

Alfred Frisque, director of technology for Nalco, asked why the conventional method for destroying cyanide, using chlorine caustic (the same substance to be used in the scrubber) was not being used instead of incineration.

"Is this the technically sound procedure?" he asked.

Constantelos replied that the USEPA experimented with chemical destruction of the film chips first, but discovered that the gelatinous character of the material inhibited chemical interaction, and resulted in globs of still-tainted material.

Robert Babcock, senior research chemist at Amoco, asked whether Oberacker expects the cyanide to be destroyed during incineration, or to be captured chemically during the scrubbing process.

Oberacker replied that he cannot guarantee the effectiveness of incineration without a test, but noted that the agency has not encountered a compound yet which cannot be burned down to its components.

Babcock also asked what will be done with the liquid by-product.

C-E Raymond engineer Leewood said that if any cyanide shows up in the liquid, it will be neutralized with hydrochloride.

John Harkness, who works on energy and environmental systems at the Argonne National Laboratory, asked for clarification on the amount of material to be burned during the test, noting that he had heard numbers ranging from 200 pounds to 2,000 pounds.

Oberacker said he will need six good runs of three hours each. (Burning at a rate of 50 pounds an hour, that comes out to 900 pounds.) Oberacker said there may be as much as 2,000 pounds on site when the test begins.

Council's concerns

Councilman Joseph Phelan objected to the fact that the USEPA may issue a 90-day permit for an experiment expected to last only a week. It was suggested that the City may wish to limit the amount of material to be burned, rather than the number of days. Harish Desai, from the IEPA's permits section in Springfield, said the IEPA permit may be considerably shorter than 90 days.

Councilman James Newkirk asked if the local scientists were satisfied with the safety of the proposed testing procedure.

Frisque said he was, noting that hazardous waste is a real problem and incineration is one way to address it.

Harkness, who said he is personally familiar with USEPA testing and monitoring procedures, said they are rigorous, specific and codified. He said the 10 parts/million limit on stack emissions "is leaning over backwards for safety."

Babcock said he has no objections to the plans.

Mayor Margaret Price asked if the City will be kept informed during the experiment. C-E Raymond President Ronald Rolicek promised daily reports. Company officials also said that Naperville will receive advance notice of any future tests, in the event the company gets a long-term permit in the future.

Councilman Phyllis Rasmussen asked how the material will be stored and transported. Leewood said it will be kept inside sealed drums, inside the laboratory.

Fire last summer

When Mrs. Price opened the meeting to questions, a SUN reporter asked C-E Raymond officials about the cause of a fire at the laboratory this summer.

A company representative said that the fire was caused by an accumulation of coal dust in a drying-grinding unit, which ignited when the machine was started up after 2-3 weeks of non-use. He said the fire was smoky and blew out control panels on the machine, but was confined to the machine itself. He said the company has since instituted new cleaning procedures, to prevent accumulation of coal dust. He noted that the grinder is not involved in the proposed incineration.

Howard Klee, a Naperville resident and chemical engineer, said the USEPA, as is customary, should project the amount of ground level concentrations of cyanide, in the event of the "worst case scenario" which would emit 100 parts/million into the atmosphere.

A 'full-proof' test

Klee noted that one USEPA official had suggested that the control system for the test is full-proof.

"Dr. Murphy has said it's impossible to make anything full-proof, because fools are too clever," he commented.

He asked if the USEPA has any contingency plans for spills and accidents.

Klee said he had even more concern about C-E Raymond's intention to apply to the City in the future for support of its application for a long-term permit for test burning.

While the risks of incineration itself may be minimized, there are greater risks involved in the transport, storage, and return of unburned hazardous material, he said. He noted that those risks were not addressed during the discussion.

Objectivity doubted

Another resident, Phillip Rasmussen, Councilman Rasmussen's husband, expressed doubt about the environmental officials' objectivity in evaluating the test, since the USEPA and the IEPA appear to be as interested in the results as C-E Raymond.

He also wanted to know how soon the burning could be shut down, in the event the alarm bells on the stack go off.

C-E Raymond's Cephart said that in the event of a shutdown, the material present in the incinerator might continue to burn for three to five minutes.

On the issue of objectivity, USEPA's Oberacker, who intends to be working with his nose in the stack, said, "I'll say that I have a personal interest in not breathing any cyanide gas above a certain level."

An IEPA official also promised objectivity.

Why here?

Councilmen Phelan and Rasmussen asked why Naperville, in the middle of a heavily populated area, should be chosen for this type of testing.

USEPA's Kim said only two laboratories had the incincerator technology needed for the test, and that this was the more economical site. He added that agency officials really believe that the test poses no safety hazard.

Constantelos added that there is no place in the nation, no matter how remote, where someone would not object. He added that it is probable that fully loaded gasoline trucks pass through Naperville, and they pose an equal or greater risk to public health than the material for the experiment. He added that trucks loaded with hazardous wastes are on the highway every day, with not nearly the supervision involved in this testing.

A Council vote on the test-burn will be taken Monday. C-E Raymond's desire for a permit for long term testing will be brought to the City for a public hearing at some time in the future.